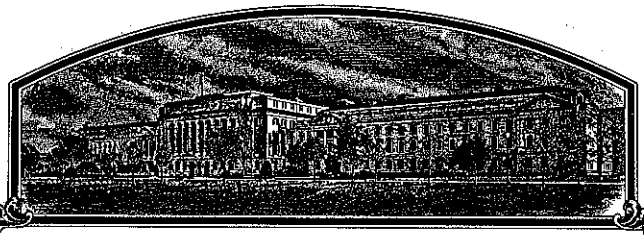

No. 9300256

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Farmers Marketing Corp.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

DURUM WHEAT
'Durostar'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 29th day of September in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

Marsha A. Stanton
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Farmers Marketing Corporation

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
D5681

3. VARIETY NAME
Durostar

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
3501 E. Broadway Road
Phoenix, AZ 85040

5. PHONE *(Include area code)*
602/437-4058

FOR OFFICIAL USE ONLY

PVPO NUMBER
9300256

FILING
Date: July 8, 1993
Time: ☐ A.M ☐ P.M

FEES RECEIVED
Filing and Examination Fee: $ 2325.00
Date: July 7, 1993
Certificate Fee: $ ~~0~~ 275.00
Date: 05/22/95

6. GENUS AND SPECIES NAME
Triticum Turgidum L. Variety Durum

7. FAMILY NAME *(Botanical)*
Gramineae

8. CROP KIND NAME *(Common Name)*
Wheat - Durum

9. DATE OF DETERMINATION
~~June 1993~~ 1989 MAR per letter

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation
Amend 1993

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Arizona

12. DATE OF INCORPORATION
1952

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Rex K. Thompson, Plant Breeder
Farmers Marketing Corporation
3501 E. Broadway Rd.
Phoenix, AZ 85040

PHONE *(Include area code)*: 602/437-4058

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

- a. ☒ Exhibit A, Origin and Breeding History of the Variety
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety.
- d. ☒ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. ☒ Seed Sample (2,500 viable untreated seeds) Date Seed Sample mailed to Plant Variety Protection Office 7-1-93.
- g. ☒ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☒ YES *(If "YES," answer items 16 and 17 below)* ☐ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date. _____.)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES (If "YES," give names of countries and dates) Greece - Greek Registry March 1993
☐ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Sheldon E. Richardson	President, C.E.O.	6/30/93
Sheldon E. Richardson	President	6-30-93

EXHIBIT A

BREEDING HISTORY OF DUROSTAR

'Durostar' (D 5681) is a spring durum derived by Farmers Marketing Corporation from a F_2 head selection from a genetic male sterile facilitated recurrent selection population. The population was developed by The University of Arizona and released as AZ MSFRS-86 Quality Enhanced Semidwarf Spring Durum Wheat Germplasm. A single plant from the F_3 headrow was harvested in Montana and increased at El Centro, California in 1986. The bulk F_5 was grown at Yuma, Arizona in 1987. Fifteen selected heads were seeded in individual rows at Post Falls, Idaho. Ten uniform non-segregating rows were bulked for quality and yield evaluation. Forty-eight heads from a Yuma seeding were selected and grown in individual rows at Yuma in 1989. Thirty-nine were harvested and bulked as being of the same phenotype and increased at Mt. Vernon, Washington in the summer for the present designated breeder. D5681 harvested in Washington under rather moist condition resulting in low germination and was increased at Yuma, Arizona in 1990.

Durostar is uniform and stable. Less than .01% taller plants were rogued from the breeder seed increase in 1990. A like number may appear in the foundation seed increase being grown at Kimberly, Idaho in 1993. No genetic male steriles were observed in the 1990 increase. However, because of possible seed set on unidentified male sterile and further segregation, limited genetic male sterility may occur at less than .01%.

9300256

FMC addendum to PVP Application No. 9300256 'Durostar'
Date: 12/22/93

1. Exhibit A

# of generations stability observed: 6 years, 1988 - 1993. Maricopa, AZ
3 years, 1989-1991. UC-Davis Regional Testing

2. Exhibit A

Breeding Criteria: Increased semolina quality (protein, color, gluten strength), lodging resistance, and yield under irrigated production.

Germplasm Source Explanation

The durum cultivar, D5681 'Durostar' was selected and developed from a broad-base, diverse population, AZ-MSFRS-86 Quality Enhanced Semidwarf Durum Wheat Germplasm. The durum population was developed over a period of four years and eight generations by genetic male sterile facilitated recurrent selection population breeding from a broad diversified CIMMYT, Northern U.S., Canadian, and Walian durums and descendants of their hybridization. These were assembled in eight years of a conventional pedigree and population breeding program. Large numbers (500-1000) of controlled sib and top-crosses (50%) were selected for yield and quality characteristics. Among cultivars most frequently used in repeated top crossing for quality were 'Vic', 'Wakooma', 'Wascoma', 'Cando', 'Edmore', 'Leeds', 'Lloyd', and 'Westbred 881'. To complete each cycle the bulk F seed was increased in Montana each year.

3. Exhibit C

Date of Determination: 1989

3

EXHIBIT B

NOVELTY STATEMENT

Durostar is most similar to Mexicali 75 in plant type and appearance except for the following differences:

1) Durostar significantly produces on the average approximately 8% higher grain yield than Mexicali 75.

2) Durostar is shorter and is less susceptible to lodging than Mexicali 75.

3) Durostar is requires 2 to 8 fewer days to reach the 50% heading stage when compared to Mexicali 75.

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Farmers Marketing Corporation

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
P.O. Box 60578, Phoenix, AZ 85082-0578
5236 S. 40th St., Phoenix, AZ 85040

FOR OFFICIAL USE ONLY

PVPO NUMBER 9300256

VARIETY NAME OR TEMPORARY DESIGNATION
D5681

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[2] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[1] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____
[2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____
[3] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) Amber

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[.][9][6] FIRST FLOWERING
[1][0][8] LAST FLOWERING

4. MATURITY (*50% Flowering*):
[0][2] NO. OF DAYS *EARLIER* THAN .....
[ ][ ] NO. OF DAYS *LATER* THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Mexicali 75

5. PLANT HEIGHT (*From soil level to top of head*):
[0][8.][9] CM. HIGH
[ ][ ] CM. TALLER THAN .....
[0][2] CM. SHORTER THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Mexicali 75

6. PLANT COLOR AT BOOTING (*See reverse*):
[1] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[0][4] NO. OF NODES (*Originating from node above ground*)
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[ ][ ] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[ ] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____
[ ] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[ ][ ] MM. LEAF WIDTH (*First leaf below flag leaf*)
[ ] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[ ][ ] CM. LEAF LENGTH (*First leaf below flag leaf*):

11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

[2] 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[0 7] CM. LENGTH.

[1 6] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[3] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[6] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[3] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[3] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR (some variability)

[1] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[ ] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[2] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[0 8] MM. LENGTH

[0 3.5] MM. WIDTH

[5 0] GM. PER 1000 SEEDS

17. SEED CREASE: (some variability)

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] STEM RUST (Races) _____

[0] LEAF RUST (Races) _____

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[ ] OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID (Bydv.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[0] OTHER (Specify) _____

HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Mexicali 75	Seed size	Mexicali 75
Leaf size	---	Seed shape	Yavaros 79
Leaf color	Turbo	Coleoptile elongation	---
Leaf carriage	---	Seedling pigmentation	Mexicali 75

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

Table Descriptions

A. Tables 1a, 1b, and 1c are for novelty statement and additional descriptions.

B. Tables 2 - 6 are for additional descriptions on agronomic data.

C. Table 7 - 10 are for additional descriptions on quality data.

Table 2. Grain yield among three durum wheat varieties measured over 18 location years.

Location/year	Durostar	Mexicali 75	Reva
Sacaton, AZ 1988	8200.00	7663.00	6814.00
Maricopa, AZ 1989	7458.00	7003.00	6670.00
Maricopa, AZ 1990	5453.00	5211.00	5942.00
Yuma, AZ 1990	6846.00	7390.00	6534.00
Maricopa, AZ 1991	8327.00	6708.00	7817.00
Yuma, AZ 1991	5945.00	7209.00	6670.00
Maricopa, AZ 1992	7240.00	6506.00	6464.00
El Centro, CA 1988	9140.00	9580.00	8960.00
El Centro, CA 1989	8510.00	8410.00	7870.00
Davis, CA 1989	6540.00	4870.00	5440.00
Kings, CA 1989	3950.00	2900.00	2480.00
Delta, CA 1989	8370.00	7880.00	7730.00
El Centro, CA 1990	8760.00	8120.00	8250.00
Davis, CA 1990	7540.00	5740.00	6900.00
Kings, CA 1990	6330.00	4800.00	5900.00
El Centro, CA 1991	10490.00	9890.00	10530.00
Davis, CA 1991	8840.00	7456.00	7670.00
Kings, CA 1991	7610.00	7380.00	7930.00
Mean	7531.00	6929.00	7032.00
σ_{n-1}	1533.15	1735.88	1664.12
σ_{error}	361.37	409.15	392.24

Table 1a. Mean comparison for grain yield among three durum wheat varieties measured over 18 location years in Arizona and California.

Variety	Yield
Durostar	7531.00 A*
Reva	7032.00 B
Mexicali 75	6929.00 B
lsd P=0.05	342.30

* Means with the same letter are not significantly different at P = 0.05

Table 1b. Paired t-test analysis among three durum wheat varieties for grain yield measured over 18 location years in Arizona and California.

	Durostar	Mexicali 75	Reva
Durostar	-	3.072**	3.466**
Mexicali 75	-	-	-.639ns
Reva	-	-	-

** = significant t at $\alpha = .05$

ns = non-significant t

Table 1c. Paired t-test analysis among three durum wheat varieties for lodge rating measured over 13 location years in Arizona, and California.

	Durostar	Mexicali 75	Reva
Durostar	-	-3.93**	-2.46**
Mexicali 75	-	-	2.61**
Reva	-	-	-

** = significant t at $\alpha = .05$

Table 3. Plant height and lodging among three durum varieties measured over 18 location years.

	Plant height (in.)			Lodging†		
Location/year	Durostar	Mexicali 75	Reva	Durostar	Mexicali 75	Reva
Maricopa, AZ 1989	36.0	37.0	32.0	0.0	4.0	1.0
Maricopa, AZ 1990	33.0	37.0	33.0	5.0	5.0	5.0
Maricopa, AZ 1991	39.0	42.0	37.0	0.0	6.0	0.0
El Centro, CA 1989	35.0	37.0	34.0	2.3	3.8	2.3
Davis, AC 1989	33.0	30.0	33.0	6.8	7.8	7.5
Kings, CA 1989	33.0	35.0	32.0	4.8	5.5	6.3
Delta, CA 1989	39.0	42.0	40.0	1.3	3.0	2.0
El Centro, CA 1990	33.0	36.0	34.0	3.3	5.8	6.3
Davis, CA 1990	39.0	40.0	38.0	7.5	6.5	6.3
Kings, CA 1990	31.0	35.0	33.0	0.0	0.0	0.0
El Centro, CA 1991	34.0	37.0	33.0	2.3	4.8	2.8
Davis, CA 1991	39.0	43.0	41.0	0.0	0.0	0.0
Kings, CA 1991	39.0	43.0	39.0	0.0	0.0	0.0
Mean	35.60	38.00	35.31	3.02	5.02	3.73
σ_{n-1}	3.02	3.83	3.23	2.40	1.35	2.33
σ_{error}	0.84	1.06	0.89	0.66	1.95	0.65

†Rating scale for lodging: 1 = 0-3%, 2 = 4-14%, 3 = 15-29%, 4 = 30-49%, 5 = 50-69%, 6 = 70-84%, 7 = 85-95%, 8 = 96-100%.

Table 4. Days to 50% heading from January, and days to physiological maturity measured over eight location years.

	Durostar		Mexicali 75		Reva	
Location/Year	50% head	Maturity	50% head	Maturity	50% head	Maturity
Sacaton, AZ 1988	81.0	135.0	81.0	125.0	84.0	126.0
Maricopa, AZ 1989	75.0	128.0	84.0	132.0	86.0	130.0
Maricopa, AZ 1990	82.0	137.0	88.0	137.0	87.0	137.0
Maricopa, AZ 1991	79.0	143.0	82.0	144.0	84.0	141.0
El Centro, CA 1988	81.0	138.0	82.0	137.0	81.0	138.0
El Centro, CA 1989	74.0	117.0	76.0	120.0	76.0	118.0
El Centro, CA 1990	81.0	131.0	83.0	133.0	88.0	133.0
El Centro, CA 1991	76.0	130.0	81.0	136.0	83.0	135.0
Mean	78.63	132.0	82.13	133.00	83.63	132.25
σ_{n-1}	3.16	7.89	3.36	7.52	3.82	7.44
σ_{error}	1.12	2.79	1.19	2.66	1.35	2.63

Table 5. Mean 1000 kernel weights among three durum wheat varieties measured over nine location years.

Location/Year	Durostar	Mexicali 75	Reva
Davis, CA 1989	41.3	44.1	40.1
Delta, CA 1989	46.8	56.3	50.3
El Centro, CA 1989	48.4	55.3	49.6
Davis, CA 1990	43.8	49.2	45.0
El Centro, CA 1990	42.0	46.1	41.8
Kings, CA 1990	46.1	50.2	47.3
Davis, CA 1991	44.0	51.3	45.1
El Centro, CA 1991	50.9	56.0	51.8
Kings, CA 1991	51.6	58.8	55.1
Mean	46.10	51.92	47.34
σ_{n-1}	3.69	5.00	4.84
σ_{error}	1.23	1.67	1.61

Table 6. Black point infection percentages observed at two severely infected locations in 1989.

Variety	Yuma, AZ 1989	El Centro, CA 1989	Mean	Std. Dev. (σ_{n-1})
Durostar	4.0	11.4	7.7	5.23
Nudura	45.3	9.6	12.5	4.03
Westbred Turbo	20.7	9.3	15.0	8.06
Mexicali 75	-	13.3	-	-
Westbred 881	27.0	6.5	16.8	14.49
Durex	33.0	13.0	23.0	14.14
Yavaros	31.1	19.1	25.7	8.49
Aldura	-	18.8	-	
Mean	20.80	12.63		
σ_{n-1}	11.90	4.50		

Table 7. California Regional durum wheat quality means for the year 1991among five durum wheat varieties (USDA North Dakota State Milling Lab).

Variety	1000 KWT†	ASH††	Wheat Protein†††	Hardness§	Fall No.§§	Total Extract§§§	Semolina Extract‡
Bravadur	59.80	1.80	14.23	119.00	431.30	79.70	63.90
Durostar	48.70	1.80	12.53	112.70	424.30	75.80	61.40
Amber	51.30	1.60	11.90	126.70	400.00	76.80	62.30
Bronco	53.50	1.70	13.10	122.30	456.70	80.10	63.40
Mexicali	57.60	1.70	12.40	123.70	449.30	78.70	63.00
LSD P=0.05	6.70	0.10	0.80	9.70	60.40	4.90	3.10

†1000 Kernel weight in grams.
††Ash content.
†††Wheat Protein on 14% moisture basis.
§Kernel hardness.
§§Fall No. = Semolina Falling Number.
§§§Total extraction percentage.
‡Semolina extraction percentage.

Table 8. California Regional durum wheat quality means continued for the year 1991 among five varieties (USDA North Dakota State Milling Lab).

Variety	SPK†	DUS††	MIX†††	Semolina Protein§	VI§§	Cook Wt.§§§	FIRM‡
Bravadur	58.70	85.00	3.33	13.00	8.50	31.80	5.80
Durostar	40.00	81.70	2.00	11.10	8.50	32.70	5.50
Amber	65.70	95.00	2.00	11.40	9.50	33.00	4.70
Bronco	62.00	85.00	1.70	11.70	8.70	32.70	5.40
Mexicali	48.60	85.00	3.00	11.30	7.80	32.80	5.30
LSD p=0.05	34.00	8.20	0.90	0.80	0.50	1.60	0.80

†Semolina speck count.
††Semolina dust color.
†††Mixograph score.
§Semolina protein percentage.
§§Spaghetti visual color score.
§§§Cooking weight in grams.
‡Cooked spaghetti firmness score.

Table 9. Mean quality data among 11 durum wheat varieties grown in Arizona. Data was derived by the USDA North Dakota State Milling Lab. Means indicate sample results combined over four location years.

Variety	Sedimentation	Wheat Protein	Hardness	Semolina Extract	Semolina Color	Semolina Protein
Reva	41	14.2	116	63.3	95	13.5
Mexicali	31	12.0	113	65.1	80	10.7
Durostar	32	12.9	114	65.1	80	12.4
Amber	17	12.6	117	64.8	95	11.5
Bravadur	35	14.1	116	65.5	88	13.7
Durex	44	13.1	117	66.5	93	12.4
Yavaros	22	12.3	122	61.1	60	10.4
Westbred 881	33	12.4	120	64.5	90	11.6
Diavolo Duro	35	11.7	118	59.3	80	10.3
Bronco	21	11.6	120	61.1	80	10.0
Mean	31.1	12.7	117.3	63.9	84.1	11.7
σ_{n-1}	8.7	.91	2.8	2.5	10.6	1.3

Table 10. Polyacrylamide Gel Eletrophoresis banding results[†] for glutenin subunits among eight durum wheat varieties tested by the University of California , Department of Agronomy and Range Science.

Variety	Glutenin Subunits						SDS SED[§§]
	OMEGA[§]	LMW[††]	GAMMA[§]	BETA[§]	ALPHA[§]	HMWB1[†††]	
DUREX	1	2	1	2	3	6 + 8	67
BRAVADUR	1	2	1	2	1	6 + 8	51
DUROSTAR	1	2	1	1	3	6 + 8	55
DIAVOLO DURO	1	2	1	1	3	7 + 8	55
BRONCO	1	1	1	2	1	6 + 8	31
AMBER	1	1	1	1	1	6 + 8	21
REVA	1	2	1	1	1	6 + 8	67
YAVAROS	1	1	1	2	1	20	28

[†]Significant interactions between LMW and HMWB1 revealed that in presence of LMW 2, lines with bands 6 + 8 had higher sedimentation values than those with bands 7 + 8. In the presence of LMW 1, the order is reversed. Therefore, a genotype with LMW 2 and HMWB1 6 + 8 is of higher gluten strength. Presence of alpha 3 , especially with beta 2 promote quality.
[††]LMW = Low molecular weight glutenin subunits.
[†††]HMBW1 = High molecular weight glutenin subunits
[§]Omega, Gamma, Beta, and Alpha glutenin variants.
[§§]SDS Sedimentation.

EXHIBIT D

ADDITIONAL DESCRIPTION

Durostar is a very early maturing spring durum with short, stiff straw. Juvenile growth habit is erect and leaves are yellow green. Heads are slightly tapered, dense, awned and white at maturity. Glumes are white, glabrous, wide and long. Shoulders are narrow and apiculate with narrow acuminate beaks, typically seven to eight mm long. Seeds are medium large, elliptical, long vitreous, and amber. The brush is short and not collared. The crease is shallow, of moderate width, and cheeks are rounded.

Under environmental conditions subject to severe black point , durostar has exhibited less infestation than the commonly grown varieties.

With the exception to Aldura it is shorter than the other desert durums and is less susceptible to lodging than Reva or Yavaros 79.

Durostar consistently produces higher grain yields than Reva by an average of 7%.

Polyacrylamide gel electrophoresis banding results glutenin subunits indicated Durostar as being different than Durex, Reva, and Yavaros 79.

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EXHIBIT E

STATEMENT OF THE BASIS OF THE APPLICANT'S OWNERSHIP

Regular employees of the applicant, Farmers Marketing Corporation, have developed Durostar.

Farmers Marketing Corporation is the proprietary owners and intended commercial user of the variety.